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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/994,746 | 11/28/2001 | Hideki Yoshinaga | 35.C15980 | 8349 |

5514 7590 02/09/2004

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NEW YORK, NY 10112

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| EXAMINER |
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SHAPIRO, LEONID

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| ART UNIT | PAPER NUMBER |
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2673

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DATE MAILED: 02/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,746

Applicant(s)

YOSHINAGA ET AL.

Examiner

Leonid Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3, 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA (Admitted Prior Art) in view of Kunzman (US Patent No. 6,392,717).

As to claim 1, APA teaches a color liquid crystal display device comprising a liquid crystal display part, and light sources for irradiating the liquid crystal display part with lights of three primary colors, respectively, the device performing display of one frame by respective fields of three primary colors and a white field displayed with a mixture of three primary colors in the liquid crystal part (See Figs. 13, 16, items 20,22,Lc, in description See pages 6-10), wherein the device further comprises: a circuit for comparing brightness levels of inputted three primary color signals for a pixel to determine a minimum value (See Fig. 13, item 14, in description See page 7, Lines 2-6); a circuit for subtracting the brightness value of each pixel in the white field from the inputted three primary color signals for respective primary color fields (See Fig. 13, items 17-19, in description See page 7, Lines 6-21).

APA does not show a circuit for determining a brightness level of a pixel in the white field as the minimum value modulated by proportion value and for determining a maximum value of the minimum value of each pixel in one frame and a circuit for setting the brightness of the light source in the white field as the maximum value multiplied by the proportion value and

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for driving the light source while supplying the display signals of the respective fields of three primary colors and the white field.

Kunzman teaches a circuit for determining a brightness level of a pixel in the white field as the minimum value modulated by proportion value (g) and for determining a maximum value (C_{max}) of the minimum value of each pixel in one frame (See Figs. 2, items Y-DETECT, 32, 36, 46, in description See Col. 4, Lines 1-52) and a circuit for setting the brightness of the light source in the white field as the maximum value (Y_{ws}) multiplied by the proportion value (Y_{ratio}) and for driving the light source while supplying the display signals of the respective fields of three primary colors and the white field (See Fig. 6, items 62, 64, 66, in description See Col. 10, Lines 2-45).

Since Kunzman mentioned that the system could have three colored light sources (See Col. 3, Lines 43-48), it would have been obvious to one ordinary skill in the art at the time of the invention to implement circuits for comparing brightness levels, circuits for setting proportion and light driving part as shown by Kunzman for color wheel in APA apparatus for three colored light sources in order to produce better image (See Col. 2, Line 39 in the Kunzman reference).

As to claim 3, Kunzman teaches automatically to set proportion value depending on changes of displayed information (See Figs. 2-3, items 32, 34, 38, in description See Col. 2, Lines 18-20, Col. 3, Lines 43-45 and Col. 4, Lines 1-5).

As to claims 6, 8, Kunzman teaches a circuit for detecting a change of maximum brightness to determine the proportion value (Y_{ratio}), relationship between brightness in white and color field (Y_{ws} , CC_r , CC_b , CC_g) (See Col. 10, Lines 2-45).

As to claim 7; APA and Kunzman do not show proportion value in the range of 0% to

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100%.

It would have been obvious to one ordinary skill in the art at the time of invention to use this range for proportion value during calibration process (See Fig. 6, items 62, 64, 66, in description See Col. 10, Lines 2-45).

2. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA and Kunzman as aforementioned in claim 1 in view of Yamazaki et al. (US Patent No. 6,597,348 B1).

As to claim 4, APA and Kunzman do not show proportion value is set by a manual switch.

Yamazaki et al. teaches information-processing with a field sequential display, back light with three light sources and touch panel (see Fig. 2, items 101-104, in description See Col. 2, Lines 35-51).

It would have been obvious to one ordinary skill in the art at the time of the invention to use touch panel for setting proportion manually in APA and Kunzman apparatus for three colored light sources in order to produce better image.

As to claim 5, Yamazaki et al. teaches with proportion value equal to 0% one frame is divided into three fields to perform display only by three-color fields (See Fig. 3, items R,G,B, in description See Col. 4, Lines 64-68).

Response to Amendment

3. Applicant's arguments filed 01-06-04 have been fully considered but they are not persuasive.

In Remarks (first page, two last paragraphs) Applicant's stated none of references suggested the setting the brightness of the light source in the white field as the maximum value multiplied by the proportion value. However, Kunzman teaches to set up the brightness of the light source in the white field during calibration as the maximum value multiplied by the proportion value (See Fig. 6, items 62, 64, 66, in description See Col. 10, Lines 2-45).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Telephone inquire

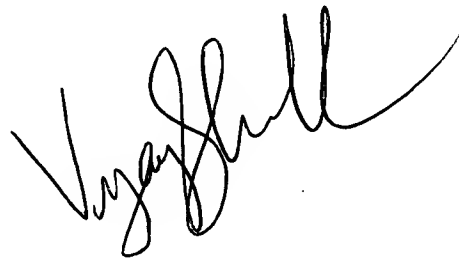
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

ls

A handwritten signature in black ink, appearing to read 'Vijay Shankar', written in a cursive style.

**VIJAY SHANKAR
PRIMARY EXAMINER**